



# LOGISTICS

## Captains, Mates, and Pilots (Ship and Boat)

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### Job Overview

Captains, Mates, and Pilots command or supervise the operations of many kinds of watercraft, on the deep sea as well as inland waterways. These include merchant ships, tugboats, towboats, ferries, dredges, and cruise ships.

#### Captains

Captains, sometimes called masters, are in overall command of the operation of a vessel and supervise the work of all officers and crew. They determine the course and speed of the vessel, maneuver to avoid hazards, and continuously monitor the vessel's position with charts and navigational aids.

#### Mates

Mates, sometimes called deck officers, direct the routine operation of the vessel for the Captain during the shifts when they are on watch. All Mates stand watch for specified periods, usually four hours on and eight hours off. However, on smaller vessels there may be only one Mate who alternates watches with the Captain. The Mate assumes command of the ship should the Captain become incapacitated.

#### Pilots

Pilots guide ships in and out of harbors, through straits, and on rivers and other confined waterways where a familiarity with local water depths, winds, tides, currents, and hazards such as reefs and shoals are of prime importance. Pilots on river and canal vessels usually are regular crew. Harbor Pilots are generally independent contractors who accompany vessels while they enter or leave port.

### Typical Tasks

#### Captains

- ➔ Calculate sightings of land using sounding devices and following contour lines on charts.
- ➔ Compute positions, set courses, and determine speeds, using computers, charts, area plotting sheets, compasses, sextants, and knowledge of local conditions.
- ➔ Steer and operate vessels using radios, depth finders, radars, lights, buoys, and lighthouses.
- ➔ Direct and coordinate crew members or workers performing activities such as loading and unloading cargo, steering vessels, operating engines, and operating, maintaining, and repairing ship equipment. Schedule watches and assign living quarters to crew members.

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- ➔ Inspect vessels to ensure efficient and safe operation of vessels and equipment, and conformance to regulations. Arrange for ships to be fueled, restocked with supplies, and/or repaired.
- ➔ Maintain records of daily activities, personnel reports, ship positions and movements, ports of call, weather and sea conditions, pollution control efforts, and/or cargo and passenger status.
- ➔ Monitor the loading and discharging of cargo or passengers.
- ➔ Signal crew members or deckhands to rig tow lines, open or close gates and ramps, and pull guard chains across entries.

## Mates

- ➔ Determine geographical positions of ships using computers, lorans, and the stars, and use this information to determine course and speed.
- ➔ Inspect equipment such as cargo-handling gear, lifesaving equipment, visual-signaling equipment, and fishing, towing, or dredging gear.
- ➔ Observe loading and unloading of cargo and equipment to ensure that handling and storage are performed according to specifications.
- ➔ Steer vessels, utilizing navigational devices such as compasses and sextons, and navigational aids such as lighthouses and buoys.
- ➔ Supervise crew members in the repair or replacement of defective gear and equipment, as well as the cleaning and maintenance of decks, bridges, and superstructures.
- ➔ Arrange for ships to be stocked, fueled, and repaired.
- ➔ Assume command of vessels in the event that ships' masters become incapacitated.

## Pilots

- ➔ Consult maps, charts, weather reports, and navigation equipment to determine and direct ship movements. Advise ships' masters on harbor rules and customs procedures.
- ➔ Direct courses and speeds of ships, based on specialized knowledge of local winds, weather, water depths, tides, currents, and hazards.
- ➔ Give directions to crew members who are steering ships.
- ➔ Operate ship-to-shore radios to exchange information needed for ship operations.
- ➔ Provide assistance to vessels approaching or leaving seacoasts, navigating harbors, and docking and undocking.
- ➔ Set ships' courses to avoid reefs, outlying shoals, and other hazards, utilizing navigational aids such as lighthouses and buoys.
- ➔ Steer ships into and out of berths, or signal tugboat captains to berth and unberth ships.
- ➔ Serve as a vessel's docking master upon arrival at a port and when at a berth.

*Detailed descriptions of these occupations may be found in the Occupational Information Network (O\*NET) at [online.onetcenter.org](http://online.onetcenter.org).*

## Important Skills, Knowledge, and Abilities

- ➔ Coordination — Adjusting actions in relation to others' actions.
- ➔ Operation Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.

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- Transportation — Knowledge of principles and methods for moving people or goods by air, rail, sea, or road, including the relative costs and benefits.
- Geography — Knowledge of principles and methods for describing the features of land, sea, and air masses, including their physical characteristics, locations, and interrelationships.
- Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.
- Far Vision — The ability to see details at a distance.
- Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong.
- Spatial Orientation — The ability to know your location in relation to the environment or to know where other objects are in relation to you.
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.
- Oral Expression — The ability to communicate information and ideas in speaking so others will understand.
- Glare Sensitivity — The ability to see objects in the presence of glare or bright lighting.

## Work Environment

Captains, Mates, and Pilots work in all weather conditions. Although they try to avoid severe storms while at sea, working in damp and cold conditions often is inevitable.

Most modern vessels are air conditioned, soundproofed from noisy machinery, and equipped with comfortable living quarters. For some workers, these amenities have helped ease the sometimes-difficult circumstances of long periods away from home. Also, modern communications, especially e-mail, link modern mariners to their families. Nevertheless, some workers dislike the long periods away from home and the confinement aboard ship, and consequently leave the occupation.

The rate of unionization for Captains, Mates and Pilots is about 36 percent nationally, much higher than the average for all occupations. Many join the Seafarers' International Union, and the International Organization of Masters, Mates, and Pilots.

## California's Job Outlook and Wages

The California Outlook and Wage table represents the occupation across all industries. Some Captains, Mates, and Pilots work in the United States (U.S.) Navy and Coast Guard as well as their respective Reserves. These numbers are not reflected in the employment figures below.

Standard Occupational Classification	Estimated Number of Workers 2004	Estimated Number of Workers 2014	Average Annual Openings	2006 Wage Range (per hour)
<b>Captains, Mates, and Pilots</b>				
53-5021	2,000	2,300	90	\$16.34 to \$31.58

*Wages do not reflect self-employment.*

*Average annual openings include new jobs plus net replacements.*

*Source: [www.labormarketinfo.edd.ca.gov](http://www.labormarketinfo.edd.ca.gov), Employment Projections by Occupation and OES Employment & Wages by Occupation, Labor Market Information Division, Employment Development Department.*

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## *Trends*

Employment growth is expected in passenger cruise ships within U.S. waters. The building and staffing of several new cruise ships that will travel to and around the Hawaiian Islands will create new opportunities for employment at sea in the cruise line industry. In addition, efforts are underway at the federal level that could lead to greater use of ferries to handle commuter traffic around major metropolitan areas, which may cause more workers to be hired.

According to the California Maritime Academy, the area from Seattle/Tacoma to the Los Angeles-Long Beach area, including ports in the Oakland/San Francisco region, handles nearly 50 percent of all marine cargo moving to and from the United States. Strong and rapid growth in U.S. international trade, particularly with the Pacific Rim, has created a growing demand for licensed operators of tugs, ferries, and service vessels and marine pilots, as well as port and terminal planners and operators, and logistics service providers.

## *Training/Requirements/Apprenticeships*

Entry, training, and educational requirements for Captains, Mates, and Pilots are established and regulated by the Coast Guard, an agency of the U.S. Department of Homeland Security. The Coast Guard offers various kinds of licenses, depending on the position and type of vessel.

There are two ways to qualify to take a license exam: applicants either must accumulate sea time and meet regulatory requirements or must graduate from either a U.S. Merchant Marine Academy or approved maritime technical training school. The only Maritime Academy in California is located in Vallejo and is part of the California State University system. There are five other Maritime Academies in the United States.

A merchant mariner document, issued by the Coast Guard, is required for all persons who work on U.S. commercial ships. This document is needed before any other Coast Guard exam can be taken, and requires the following:

- ➡ Must be 16 years of age or older
- ➡ Must be U.S. citizen or alien with residential status
- ➡ Achieve passing grade on a drug test
- ➡ Have clean criminal record

Harbor Pilot training usually consists of an extended apprenticeship with a towing company or a water pilots' association. Entrants may be able seamen or licensed officers.

For further information on certification and licensing requirements, access the U.S. Coast Guard Web site at [www.uscg.mil](http://www.uscg.mil).

### **Recommended High School Course Work**

High school students looking for this type of work can take classes in algebra, science, and industrial arts. They might also consider participating in a local Sea Scout troop. This organization teaches high school boys and girls (ages 14 to 20) basic sailing and shipboard tasks on working ships throughout California, including inland ports on rivers and lakes. It is administered by the Boy Scouts of America.

## *Where Do I Find the Job?*

Both veteran and beginner Captains, Mates, and Pilots typically find jobs for voyages either through union hiring halls or directly at shipping companies. Contact information for local union halls is found through national union Web sites.

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Use the *Search for Employers by Industry* feature on the *Career Center* page at [www.labormarketinfo.edd.ca.gov](http://www.labormarketinfo.edd.ca.gov) to locate employers in your area. Search under the following industry names to get a list of private firms and their addresses:

- Coastal transportation
- Commercial Water Transportation Rental
- Crude Petroleum Extraction
- Deep Sea Freight Transportation
- Deep Sea Passenger Transportation
- Inland Water Transportation
- Navigational Services

Search these **yellow page** headings for listings of private firms:

- Marine Contractors
- Ships and Shipping Operation

## Where Can the Job Lead?

Mates generally begin their career as Third Mate, promoting to Second Mate, First Mate, and Chief Mate as they gain additional sea time and experience. Chief Mates who have broad experience can promote to Captain by meeting the experience requirements and passing the Coast Guard exam.

With experience and proven ability, Captains enjoy higher pay by commanding cruise ships or other large vessels on international waters.

### Related Occupations

Locomotive Engineers (see Logistics Profile)

Railroad Conductors and Yardmasters (see Logistics Profile)

Rail Yard Engineers, Dinkey Operators, and Hostlers (see Logistics Profile)

Truck Drivers, Light or Delivery Services (see Logistics Profile)

Truck Drivers, Heavy (see Logistics Profile)

Ship Engineers (see Logistics Profile)

## Other Sources

U.S. Coast Guard  
[www.uscg.mil](http://www.uscg.mil)

International Organization of Masters, Mates and Pilots  
[www.bridgedeck.org](http://www.bridgedeck.org)

California Association of Regional Occupational Centers and Programs  
[www.carocp.org](http://www.carocp.org)

California Maritime Academy  
[www.csum.edu](http://www.csum.edu)

Sea Scouts B.S.A.  
[www.seascout.org](http://www.seascout.org)

